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L1: Entry 2 of 8

File: USPT

Feb 3, 2004

US-PAT-NO: 6685946

DOCUMENT-IDENTIFIER: US 6685946 B2

\*\* See image for Certificate of Correction \*\*

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: February 3, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dowling; Patricia W.	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 424/206.1, 435/91.1, 435/91.33, 435/91.41,  
530/300, 536/23.72

## CLAIMS:

What is claimed is:

1. An isolated equine influenza nucleic acid molecule selected from the group consisting of: a. an isolated nucleic acid molecule that encodes a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:69, SEQ ID NO:92, and SEQ ID NO:107; and b. an isolated nucleic acid molecule fully complementary to a nucleic acid molecule of (a); wherein said nucleic acid molecule of (a) or (b) is not an entire equine influenza virus genome.
2. The nucleic acid molecule of claim 1, wherein said nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO:68, SEQ ID NO:70, SEQ ID NO:91, SEQ ID NO:93, SEQ ID NO:106 and SEQ ID NO:108 and a nucleic acid molecule comprising a nucleic acid sequence which is fully complementary to any of said nucleic acid sequences.
3. A nucleic acid molecule of claim 1, wherein said nucleic acid molecule encodes a protein.
4. A nucleic acid molecule of claim 1, wherein said nucleic acid molecule encodes a protein selected from the group consisting of Pei.sub.cal PB1-C.sub.396, and Pei.sub.cal PB1.sub.757.

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L1: Entry 4 of 8

File: USPT

Jun 17, 2003

US-PAT-NO: 6579528

DOCUMENT-IDENTIFIER: US 6579528 B1

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: June 17, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Dowling; Patricia W.</u>	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 424/205.1, 435/91.1, 435/91.33, 435/91.41,  
530/300, 536/23.72

## CLAIMS:

What is claimed:

1. An isolated equine influenza nucleic acid molecule selected from the group consisting of (a) an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:4 and SEQ ID NO:6, and (b) a nucleic acid molecule comprising a nucleic acid sequence which is fully complementary to any of said nucleic acid sequences of (a); wherein said nucleic acid molecule of (a) or (b) is not an entire equine influenza virus genome.
2. The invention according to claim 1, wherein said nucleic acid molecule comprises a cold-adapted equine influenza virus having a nucleic acid sequence selected from the group consisting of SEQ ID NO:4 and SEQ ID NO:6.
3. The invention according to claim 1, wherein said nucleic acid molecule encodes a protein comprising SEQ ID NO:5.
4. A isolated equine influenza nucleic acid molecule, wherein said equine influenza nucleic acid molecule encodes a protein SEQ ID NO:5, wherein said isolated nucleic acid molecule is not an entire equine influenza virus genome.

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15:

 Modified pulmonary surfactant is a potent adjuvant that stimulates the mucosal IgA production in response to the influenza virus antigen.  
J Immunol. 2006 Jan 15;176(2):1122-30.  
PMID: 16394001 [PubMed - indexed for MEDLINE]

16: [Soboll G, Nelson KM, Leuthner ES, Clark RJ, Drape R, Macklin](#) Related Articles, Links  
[MD, Swain WF, Olsen CW, Lunn DP](#).

 Mucosal co-administration of cholera toxin and influenza virus hemagglutinin-DNA in ponies generates a local IgA response.  
Vaccine. 2003 Jun 20;21(21-22):3081-92.  
PMID: 12798652 [PubMed - indexed for MEDLINE]

17: [Takase H, Murakami Y, Endo A, Ikeuchi T](#). Related Articles, Links

 Antibody responses and protection in mice immunized orally against influenza virus.  
Vaccine. 1996 Dec;14(17-18):1651-6.  
PMID: 9032895 [PubMed - indexed for MEDLINE]

18: [Asahi Y, Yoshikawa T, Watanabe I, Iwasaki T, Hasegawa H, Sato Y, Shimada S, Nanno M, Matsuoka Y, Ohwaki M, Iwakura Y, Suzuki Y, Aizawa C, Sata T, Kurata T, Tamura S](#). Related Articles, Links

 Protection against influenza virus infection in polymeric Ig receptor knockout mice immunized intranasally with adjuvant-combined vaccines.  
J Immunol. 2002 Mar 15;168(6):2930-8.  
PMID: 11884464 [PubMed - indexed for MEDLINE]

19: [Matsuo K, Yoshikawa T, Asanuma H, Iwasaki T, Hagiwara Y, Chen Z, Kadokami SE, Tsujimoto H, Kurata T, Tamura SI](#). Related Articles, Links

 Induction of innate immunity by nasal influenza vaccine administered in combination with an adjuvant (cholera toxin).  
Vaccine. 2000 Jun 1;18(24):2713-22.  
PMID: 10781859 [PubMed - indexed for MEDLINE]

20: [Chen KS, Burlington DB, Quinnan GV Jr](#). Related Articles, Links

 Active synthesis of hemagglutinin-specific immunoglobulin A by lung cells of mice that were immunized intragastrically with inactivated influenza virus vaccine.  
J Virol. 1987 Jul;61(7):2150-4.  
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<input type="checkbox"/>	L1	6685946.pn. and 58	1

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L1: Entry 1 of 8

File: USPT

Nov 30, 2004

US-PAT-NO: 6824784

DOCUMENT-IDENTIFIER: US 6824784 B2

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: November 30, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dowling; Patricia W.	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 435/91.1, 435/91.33, 530/300, 536/23.72

## CLAIMS:

What is claimed:

1. An isolated equine influenza nucleic acid molecule selected from the group consisting of (a) an isolated nucleic acid molecule selected from the group consisting of (a) SEQ ID NO:10, and SEQ ID NO:12, and (b) a nucleic acid molecule comprising a nucleic acid sequence which is fully complementary to any of said nucleic acid sequences of (a); wherein said nucleic acid molecule of (a) or (b) is not an entire equine influenza virus genome.
2. An isolated equine influenza nucleic acid molecule, wherein said equine influenza nucleic acid molecule encodes a protein comprising an amino acid sequence SEQ ID NO:11, wherein said isolated nucleic acid molecule is not an entire equine influenza virus genome.
3. The invention according to claim 1, wherein said nucleic acid molecule comprises a cold-adapted equine influenza virus having a nucleic acid sequence selected from the group consisting of SEQ ID NO:10, and SEQ ID NO:12.
4. The invention according to claim 1, wherein said nucleic acid molecule comprises a cold-adapted equine influenza virus encoding an HA protein, said HA protein having an amino acid sequence comprising SEQ ID NO:11.

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1: [Lindstrom S, Endo A, Sugita S, Pecoraro M, Hiromoto Y, Kamada M, Takahashi T, Nerome K.](#) Related Articles, Links  
 Phylogenetic analyses of the matrix and non-structural genes of equine influenza viruses.  
*Arch Virol.* 1998;143(8):1585-98.  
PMID: 9739336 [PubMed - indexed for MEDLINE]

2: [Kawaoka Y, Gorman OT, Ito T, Wells K, Donis RO, Castrucci MR, Donatelli I, Webster RG.](#) Related Articles, Links  
 Influence of host species on the evolution of the nonstructural (NS) gene of influenza A viruses.  
*Virus Res.* 1998 Jun;55(2):143-56.  
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 Comparative analysis of evolutionary mechanisms of the hemagglutinin and three internal protein genes of influenza B virus: multiple cocirculating lineages and frequent reassortment of the NP, M, and NS genes.  
*J Virol.* 1999 May;73(5):4413-26.  
PMID: 10196339 [PubMed - indexed for MEDLINE]

4: [Ito T, Gorman OT, Kawaoka Y, Bean WJ, Webster RG.](#) Related Articles, Links  
 Evolutionary analysis of the influenza A virus M gene with comparison of the M1 and M2 proteins.  
*J Virol.* 1991 Oct;65(10):5491-8.  
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5: [Endo A, Pecoraro R, Sugita S, Nerome K.](#) Related Articles, Links  
 Evolutionary pattern of the H 3 haemagglutinin of equine influenza viruses: multiple evolutionary lineages and frozen replication.  
*Arch Virol.* 1992;123(1-2):73-87.  
PMID: 1550498 [PubMed - indexed for MEDLINE]

6: [Hiromoto Y, Yamazaki Y, Fukushima T, Saito T, Lindstrom SE, Omoe K, Nerome R, Lim W, Sugita S, Nerome K.](#) Related Articles, Links  
 Evolutionary characterization of the six internal genes of H5N1 human influenza A virus.  
*J Gen Virol.* 2000 May;81(Pt 5):1293-303.

PMID: 10769072 [PubMed - indexed for MEDLINE]

7: [Gorman OT, Bean WJ, Kawaoka Y, Webster RG.](#) Related Articles, Links

 Evolution of the nucleoprotein gene of influenza A virus.  
J Virol. 1990 Apr;64(4):1487-97.  
PMID: 2319644 [PubMed - indexed for MEDLINE]

8: [Suarez DL, Garcia M, Latimer J, Senne D, Perdue M.](#) Related Articles, Links

 Phylogenetic analysis of H7 avian influenza viruses isolated from the live bird markets of the Northeast United States.  
J Virol. 1999 May;73(5):3567-73.  
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 Replacement of internal protein genes, with the exception of the matrix, in equine 1 viruses by equine 2 influenza virus genes during evolution in nature.  
J Vet Med Sci. 1999 Aug;61(8):987-9.  
PMID: 10487248 [PubMed - indexed for MEDLINE]

10: [Spackman E, Stallknecht DE, Slemmons RD, Winker K, Suarez DL, Scott M, Swayne DE.](#) Related Articles, Links

 Phylogenetic analyses of type A influenza genes in natural reservoir species in North America reveals genetic variation.  
Virus Res. 2005 Dec;114(1-2):89-100. Epub 2005 Jul 21.  
PMID: 16039745 [PubMed - indexed for MEDLINE]

11: [Gorman OT, Donis RO, Kawaoka Y, Webster RG.](#) Related Articles, Links

 Evolution of influenza A virus PB2 genes: implications for evolution of the ribonucleoprotein complex and origin of human influenza A virus.  
J Virol. 1990 Oct;64(10):4893-902.  
PMID: 2398532 [PubMed - indexed for MEDLINE]

12: [Lindstrom SE, Hiromoto Y, Nerome R, Omoe K, Sugita S, Yamazaki Y, Takahashi T, Nerome K.](#) Related Articles, Links

 Phylogenetic analysis of the entire genome of influenza A (H3N2) viruses from Japan: evidence for genetic reassortment of the six internal genes.  
J Virol. 1998 Oct;72(10):8021-31.  
PMID: 9733841 [PubMed - indexed for MEDLINE]

13: [Nakajima K, Nobusawa E, Ogawa T, Nakajima S.](#) Related Articles, Links

 Evolution of the NS genes of the influenza A viruses. I. The genetic relatedness of the NS genes of animal influenza viruses.  
Virus Genes. 1990 Jun;4(1):5-13.  
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14: [Basler CF, Reid AH, Dybing JK, Janczewski TA, Fanning TG, Zheng H, Salvatore M, Perdue ML, Swayne DE, Garcia-Sastre A, Palese P, Taubenberger JK.](#) Related Articles, Links

 Sequence of the 1918 pandemic influenza virus nonstructural gene (NS) segment and characterization of recombinant viruses bearing the 1918 NS genes.  
Proc Natl Acad Sci U S A. 2001 Feb 27;98(5):2746-51.  
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- 15: [Saito T, Kawaoka Y, Webster RG.](#) Related Articles, Links  
 Phylogenetic analysis of the N8 neuraminidase gene of influenza A viruses.  
Virology. 1993 Apr;193(2):868-76.  
PMID: 8460490 [PubMed - indexed for MEDLINE]
- 16: [Lai AC, Chambers TM, Holland RE Jr, Morley PS, Haines DM, Townsend HG, Barrandeguy M.](#) Related Articles, Links  
 Diverged evolution of recent equine-2 influenza (H3N8) viruses in the Western Hemisphere.  
Arch Virol. 2001;146(6):1063-74.  
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- 17: [Suarez DL, Perdue ML.](#) Related Articles, Links  
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- 18: [Nakao H, Nakajima K, Nakajima S.](#) Related Articles, Links  
 Location on the evolutionary trees of the non-structural protein (NS) and neuraminidase (NA) genes of late human influenza A (H2N2) viruses: parental viruses of the NS and NA genes of Hong Kong influenza A (H3N2) viruses.  
J Gen Virol. 1993 Aug;74 ( Pt 8):1667-72.  
PMID: 8345357 [PubMed - indexed for MEDLINE]
- 19: [Daly JM, Lai AC, Binns MM, Chambers TM, Barrandeguy M, Mumford JA.](#) Related Articles, Links  
 Antigenic and genetic evolution of equine H3N8 influenza A viruses.  
J Gen Virol. 1996 Apr;77 ( Pt 4):661-71.  
PMID: 8627254 [PubMed - indexed for MEDLINE]
- 20: [Borchers K, Daly J, Stiens G, Kreling K, Kreling I, Ludwig H.](#) Related Articles, Links  
 Characterisation of three equine influenza A H3N8 viruses from Germany (2000 and 2002): evidence for frozen evolution.  
Vet Microbiol. 2005 Apr 25;107(1-2):13-21.  
PMID: 15795074 [PubMed - indexed for MEDLINE]

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1. Document ID: US 6824784 B2

L1: Entry 1 of 8

File: USPT

Nov 30, 2004

US-PAT-NO: 6824784

DOCUMENT-IDENTIFIER: US 6824784 B2

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: November 30, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dowling; Patricia W.	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 435/91.1, 435/91.33, 530/300, 536/23.72

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Figures	Claims	KMC	Drawn D
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2. Document ID: US 6685946 B2

L1: Entry 2 of 8

File: USPT

Feb 3, 2004

US-PAT-NO: 6685946

DOCUMENT-IDENTIFIER: US 6685946 B2

**\*\* See image for Certificate of Correction \*\***

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: February 3, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dowling; Patricia W.	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 424/206.1, 435/91.1, 435/91.33, 435/91.41,  
530/300, 536/23.72

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Figures	Claims	KMC	Drawn D
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 3. Document ID: US 6649169 B2

L1: Entry 3 of 8

File: USPT

Nov 18, 2003

US-PAT-NO: 6649169

DOCUMENT-IDENTIFIER: US 6649169 B2

**\*\* See image for Certificate of Correction \*\***

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: November 18, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dowling; Patricia W.	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 424/206.1, 435/235.1, 435/237, 435/239[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KWMC](#) | [Drawn D](#)

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 4. Document ID: US 6579528 B1

L1: Entry 4 of 8

File: USPT

Jun 17, 2003

US-PAT-NO: 6579528

DOCUMENT-IDENTIFIER: US 6579528 B1

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: June 17, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dowling; Patricia W.	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 424/205.1, 435/91.1, 435/91.33, 435/91.41,  
530/300, 536/23.72[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KWMC](#) | [Drawn D](#)

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 5. Document ID: US 6482414 B1

L1: Entry 5 of 8

File: USPT

Nov 19, 2002

US-PAT-NO: 6482414

DOCUMENT-IDENTIFIER: US 6482414 B1

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: November 19, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Dowling; Patricia W.</u>	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/186.1, 424/204.1, 435/91.1, 435/91.33, 530/300

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6. Document ID: US 6436408 B1

L1: Entry 6 of 8

File: USPT

Aug 20, 2002

US-PAT-NO: 6436408

DOCUMENT-IDENTIFIER: US 6436408 B1

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: August 20, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Dowling; Patricia W.</u>	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 424/206.1, 435/235.1, 435/237, 435/239

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7. Document ID: US 6177082 B1

L1: Entry 7 of 8

File: USPT

Jan 23, 2001

US-PAT-NO: 6177082

DOCUMENT-IDENTIFIER: US 6177082 B1

TITLE: Cold-adapted equine influenza viruses

DATE-ISSUED: January 23, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Dowling; Patricia W.</u>	Pittsburgh	PA		
Youngner; Julius S.	Pittsburgh	PA		

US-CL-CURRENT: 424/209.1; 424/204.1, 424/206.1, 435/235.1, 435/237, 435/239

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Drawn D
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8. Document ID: US 5149531 A

L1: Entry 8 of 8

File: USPT

Sep 22, 1992

US-PAT-NO: 5149531

DOCUMENT-IDENTIFIER: US 5149531 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Method of using cold-adapted live influenza virus vaccine as an antiviral agent against influenza

DATE-ISSUED: September 22, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Youngner; Julius S.	Pittsburgh	PA		
Dowling; Patricia W.	Pittsburgh	PA		

US-CL-CURRENT: 424/93.6; 424/209.1, 424/821

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Drawn D
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Dowling Patricia.in.	8

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1. Document ID: US 20040223980 A1, WO 200174386 A2, US 20010051161 A1, AU 200149300 A, EP 1267920 A2, JP 2003528925 W

L2: Entry 1 of 2

File: DWPI

Nov 11, 2004

DERWENT-ACC-NO: 2002-010769

DERWENT-WEEK: 200475

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TITLE: Treating an animal for respiratory disease, particularly caused by equine influenza virus, comprises administering a composition comprising a virus a cold-adapted equine influenza virus or a reassortant influenza A virus

INVENTOR: DOWLING, P W; YOUNGNER, J S ; YOUNGER, J S

PRIORITY-DATA: 2000US-194325P (April 3, 2000), 2001US-0813920 (March 21, 2001), 2002US-0239972 (December 23, 2002)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20040223980 A1	November 11, 2004		000	A61K039/145
WO 200174386 A2	October 11, 2001	E	049	A61K039/12
US 20010051161 A1	December 13, 2001		000	A61K039/145
AU 200149300 A	October 15, 2001		000	
EP 1267920 A2	January 2, 2003	E	000	A61K039/145
JP 2003528925 W	September 30, 2003		062	A61K039/145

INT-CL (IPC): A01 K 13/00; A61 K 39/12; A61 K 39/145; A61 P 11/00; A61 P 31/04; A61 P 31/12; A61 P 31/16; C12 Q 1/70

Full	Title	Citation	Front	Review	Classification	Date	Reference	<input type="button" value="Send to Patent"/>	<input type="button" value="Send to DDB"/>	<input type="button" value="Claims"/>	<input type="button" value="KMC"/>	<input type="button" value="Drawn D..."/>
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2. Document ID: US 6824784 B2, WO 200009702 A1, AU 9954877 A, US 6177082 B1, EP 1105497 A1, US 6436408 B1, JP 2002522078 W, AU 760356 B, US 6579528 B1, US 20030180322 A1, US 20030199074 A1, US 6649169 B2, US 20040022809 A1, US 20040137015 A1, US 20040234553 A1

L2: Entry 2 of 2

File: DWPI

Nov 30, 2004

DERWENT-ACC-NO: 2000-224339

DERWENT-WEEK: 200479

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TITLE: New cold-adapted equine influenza viruses and reassortant viruses used as vaccines for treating influenza infections in animals, particularly horses, have a

phenotype such as temperature sensitivity or dominant interference

INVENTOR: DOWLING, P W; YOUNGNER, J S

PRIORITY-DATA: 1998US-0133921 (August 13, 1998), 2000US-0634159 (August 9, 2000), 2001US-0762861 (August 24, 2001), 2002US-0180633 (June 26, 2002), 2003US-0434811 (May 8, 2003), 2004US-0872014 (June 18, 2004)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 6824784 B2</u>	November 30, 2004		000	A61K039/145
<u>WO 200009702 A1</u>	February 24, 2000	E	127	C12N015/44
<u>AU 9954877 A</u>	March 6, 2000		000	
<u>US 6177082 B1</u>	January 23, 2001		000	A61K039/145
<u>EP 1105497 A1</u>	June 13, 2001	E	000	C12N015/44
<u>US 6436408 B1</u>	August 20, 2002		000	A61K039/145
<u>JP 2002522078 W</u>	July 23, 2002		141	C12N015/09
<u>AU 760356 B</u>	May 15, 2003		000	C12N015/44
<u>US 6579528 B1</u>	June 17, 2003		000	A61K039/145
<u>US 20030180322 A1</u>	September 25, 2003		000	C12P021/06
<u>US 20030199074 A1</u>	October 23, 2003		000	A61K039/145
<u>US 6649169 B2</u>	November 18, 2003		000	A61K039/145
<u>US 20040022809 A1</u>	February 5, 2004		000	A61K039/145
<u>US 20040137015 A1</u>	July 15, 2004		000	A61K039/145
<u>US 20040234553 A1</u>	November 25, 2004		000	A61K039/145

20040234553 A1 INT-CL (IPC) : A61 K 39/12; A61 K 39/145; A61 P 31/16; C07 H 21/04;  
 C07 K 14/11; C07 K 14/115; C12 N 7/00; C12 N 7/02; C12 N 7/04; C12 N 7/08;  
 C12 N 15/09; C12 N 15/44; C12 P 19/34; C12 P 21/06; C12 N 7/04; C12 R 1:92

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1. Document ID: US 20050175985 A1

L3: Entry 1 of 9

File: PGPB

Aug 11, 2005

PGPUB-DOCUMENT-NUMBER: 20050175985

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050175985 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: August 11, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W	Pittsburgh	PA	US
Youngner, Julius S	Pittsburgh	PA	US

US-CL-CURRENT: 435/5; 435/235.1, 530/350, 536/23.72

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2. Document ID: US 20050039739 A1

L3: Entry 2 of 9

File: PGPB

Feb 24, 2005

PGPUB-DOCUMENT-NUMBER: 20050039739

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050039739 A1

TITLE: Equine intranasal delivery system

PUBLICATION-DATE: February 24, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Penner, Steven J.	Broomfield	CO	US
Sebring, Randal W.	Fort Collins	CO	US

US-CL-CURRENT: 128/200.23

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3. Document ID: US 20040234553 A1

L3: Entry 3 of 9

File: PGPB

Nov 25, 2004

PGPUB-DOCUMENT-NUMBER: 20040234553

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040234553 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: November 25, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W.	Pittsburgh	PA	US
Youngner, Julius S.	Pittsburgh	PA	US

US-CL-CURRENT: 424/206.1; 435/235.1

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4. Document ID: US 20040223980 A1

L3: Entry 4 of 9

File: PGPB

Nov 11, 2004

PGPUB-DOCUMENT-NUMBER: 20040223980

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040223980 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: November 11, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W	Pittsburgh	PA	US
Younger, Julius S	Pittsburgh	PA	US

US-CL-CURRENT: 424/206.1; 435/5

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5. Document ID: US 20040137015 A1

L3: Entry 5 of 9

File: PGPB

Jul 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040137015

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040137015 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: July 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W.	Pittsburgh	PA	US
Youngner, Julius S.	Pittsburgh	PA	US

US-CL-CURRENT: 424/209.1; 435/235.1

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6. Document ID: US 20040022809 A1

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File: PGPB

Feb 5, 2004

PGPUB-DOCUMENT-NUMBER: 20040022809

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040022809 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: February 5, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W.	Pittsburgh	PA	US
Youngner, Julius S.	Pittsburgh	PA	US

US-CL-CURRENT: 424/206.1; 435/235.1

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7. Document ID: US 20030199074 A1

L3: Entry 7 of 9

File: PGPB

Oct 23, 2003

PGPUB-DOCUMENT-NUMBER: 20030199074

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030199074 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: October 23, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W.	Pittsburgh	PA	US
Youngner, Julius S.	Pittsburgh	PA	US

US-CL-CURRENT: 435/235.1; 530/350, 536/23.72[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D.](#) 8. Document ID: US 20030180322 A1

L3: Entry 8 of 9

File: PGPB

Sep 25, 2003

PGPUB-DOCUMENT-NUMBER: 20030180322

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030180322 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: September 25, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W.	Pittsburgh	PA	US
Youngner, Julius S.	Pittsburgh	PA	US

US-CL-CURRENT: 424/204.1; 424/186.1, 435/69.1, 435/91.1[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D.](#) 9. Document ID: US 20010051161 A1

L3: Entry 9 of 9

File: PGPB

Dec 13, 2001

PGPUB-DOCUMENT-NUMBER: 20010051161

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010051161 A1

TITLE: Cold-adapted equine influenza viruses

PUBLICATION-DATE: December 13, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dowling, Patricia W.	Pittsburgh	PA	US
Youngner, Julius S.	Pittsburgh	PA	US

US-CL-CURRENT: 424/206.1[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D.](#)[Clear](#) | [Generate Collection](#) | [Print](#) | [Fwd Refs](#) | [Bkwd Refs](#) | [Generate OACS](#)

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1: [Chen D, Endres R, Maa YF, Kensil CR, Whitaker-Dowling P, Trichel A, Youngner JS, Payne LG.](#) Related Articles, Links  
 Epidermal powder immunization of mice and monkeys with an influenza vaccine.  
*Vaccine*. 2003 Jun 20;21(21-22):2830-6.  
 PMID: 12798624 [PubMed - indexed for MEDLINE]

2: [Chen D, Burger M, Chu Q, Endres R, Zuleger C, Dean H, Payne LG.](#) Related Articles, Links  
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*Virus Res*. 2004 Jul;103(1-2):147-53.  
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*J Virol*. 2001 Sep;75(17):7956-65.  
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5: [Nagai T, Suzuki Y, Kiyohara H, Susa E, Kato T, Nagamine T, Hagiwara Y, Tamura S, Yabe T, Aizawa C, Yamada H.](#) Related Articles, Links  
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6: [Chen D, Weis KF, Chu Q, Erickson C, Endres R, Lively CR, Osorio J, Payne LG.](#) Related Articles, Links  
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- 8: [Epidermal powder immunization against influenza.](#) [Related Articles](#), [Links](#)  
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PMID: 15542190 [PubMed - indexed for MEDLINE]
- 9: [Virus-like particle \(VLP\) vaccine conferred complete protection against a lethal influenza virus challenge.](#) [Related Articles](#), [Links](#)  
Viral Immunol. 2005;18(1):244-51.  
PMID: 15802970 [PubMed - indexed for MEDLINE]
- 10: [Protection against influenza virus infection by vaccine inoculated intranasally with cholera toxin B subunit.](#) [Related Articles](#), [Links](#)  
Vaccine. 1988 Oct;6(5):409-13.  
PMID: 2848377 [PubMed - indexed for MEDLINE]
- 11: [Immune responses and protection in different strains of aged mice immunized intranasally with an adjuvant-combined influenza vaccine.](#) [Related Articles](#), [Links](#)  
Vaccine. 2001 Jul 16;19(28-29):3981-9.  
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- 12: [Intranasal immunization with liposome-encapsulated plasmid DNA encoding influenza virus hemagglutinin elicits mucosal, cellular and humoral immune responses.](#) [Related Articles](#), [Links](#)  
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PMID: 7631510 [PubMed - indexed for MEDLINE]
- 14: [Local and systemic immune response in nursing-home elderly following intranasal or intramuscular immunization with inactivated influenza vaccine.](#) [Related Articles](#), [Links](#)  
Vaccine. 2003 Mar 7;21(11-12):1180-6.  
PMID: 12559796 [PubMed - indexed for MEDLINE]
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PMID: 11282202 [PubMed - indexed for MEDLINE]
- 16: [A nonionic block co-polymer adjuvant \(CRL1005\) enhances the immunogenicity and protective efficacy of inactivated influenza vaccine in young and aged mice.](#) [Related Articles](#), [Links](#)

Vaccine. 2000 Apr 28;18(21):2177-87.  
PMID: 10717336 [PubMed - indexed for MEDLINE]

- 16: [Guebre-Xabier M, Hammond SA, Epperson DE, Yu J, Ellingsworth L, Glenn GM.](#) [Related Articles](#), [Links](#)

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J Virol. 2003 May;77(9):5218-25.  
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- 17: [Plante M, Jones T, Allard F, Torossian K, Gauthier J, St-Felix N, White GL, Lowell GH, Burt DS.](#) [Related Articles](#), [Links](#)

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- 20: [Hagiwara Y, Komase K, Chen Z, Matsuo K, Suzuki Y, Aizawa C, Kurata T, Tamura S.](#) [Related Articles](#), [Links](#)

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 PMID: 2363302 [PubMed - indexed for MEDLINE]

2: [Tamura S, Samegai Y, Kurata H, Nagamine T, Aizawa C, Kurata T.](#) Related Articles, Links  
**Vaccine.** 1988 Oct;6(5):409-13.  
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3: [Tamura S, Kurata H, Funato H, Nagamine T, Aizawa C, Kurata T.](#) Related Articles, Links  
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 PMID: 2815967 [PubMed - indexed for MEDLINE]

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5: [Tamura SI, Samegai Y, Kurata H, Kikuta K, Nagamine T, Aizawa C, Kurata T.](#) Related Articles, Links  
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 PMID: 2781859 [PubMed - indexed for MEDLINE]

6: [Kikuta K, Hirabayashi Y, Nagamine T, Aizawa C, Ueno Y, Oya A, Kurata T, Tamura S.](#) Related Articles, Links  
**Vaccine.** 1990 Dec;8(6):595-9.  
 PMID: 1965078 [PubMed - indexed for MEDLINE]

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PMID: 1634780 [PubMed - indexed for MEDLINE]
- 8: [Asanuma H, Hirokawa K, Uchiyama M, Suzuki Y, Aizawa C, Kurata T, Sata T, Tamura S.](#) Related Articles, Links  
Immune responses and protection in different strains of aged mice immunized intranasally with an adjuvant-combined influenza vaccine. *Vaccine.* 2001 Jul 16;19(28-29):3981-9.  
PMID: 11427274 [PubMed - indexed for MEDLINE]
- 9: [Nedrud JG, Liang XP, Hague N, Lamm ME.](#) Related Articles, Links  
Combined oral/nasal immunization protects mice from Sendai virus infection. *J Immunol.* 1987 Nov 15;139(10):3484-92.  
PMID: 2824609 [PubMed - indexed for MEDLINE]
- 10: [Gizuranson S, Tamura S, Aizawa C, Kurata T.](#) Related Articles, Links  
Stimulation of the transepithelial flux of influenza HA vaccine by cholera toxin B subunit. *Vaccine.* 1992;10(2):101-6.  
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- 11: [Tamura SI, Asanuma H, Ito Y, Hirabayashi Y, Suzuki Y, Nagamine T, Aizawa C, Kurata T, Oya A.](#) Related Articles, Links  
Superior cross-protective effect of nasal vaccination to subcutaneous inoculation with influenza hemagglutinin vaccine. *Eur J Immunol.* 1992 Feb;22(2):477-81.  
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- 12: [Tamura S, Funato H, Nagamine T, Aizawa C, Kurata T.](#) Related Articles, Links  
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PMID: 12559794 [PubMed - indexed for MEDLINE]
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Systemic and mucosal immune responses in mice after mucosal immunization with group B streptococcus type III capsular polysaccharide-cholera toxin B subunit conjugate vaccine. *Infect Immun.* 2000 Oct;68(10):5749-55.  
PMID: 10992481 [PubMed - indexed for MEDLINE]
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